

# 2010 West Street

City of Annapolis, Maryland  
WSSI #MD1096.02

## Wetland Delineation Report

May 16, 2016

*Prepared for:*  
Atapco Properties, Inc.  
One South Street, Suite 2800  
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*Prepared by:*



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## 1. INTRODUCTION

A wetland delineation in accordance with the methodologies outlined in the 1987 *Corps of Engineers Wetlands Delineation Manual*<sup>1</sup> and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region*<sup>2</sup> (Regional Supplement) was conducted by Kenneth R. Wallis of Wetland Studies and Solutions, Inc. on March 11, 2015. The purpose of the delineation was to identify any wetlands, streams, or other jurisdictional areas that would be regulated by the Maryland Department of the Environment and/or the U.S. Army Corps of Engineers. The limits of potential jurisdictional areas within the study area were flagged in the field with orange colored surveyors tape and numbered consecutively. One (1) wetland delineation data sheet was also completed to document the presence or absence of wetlands within the study area (Appendix A).

## 2. EXISTING SITE CONDITIONS

The 4.54 acre site at 2010 West Street (study area) is located fronting the north side of West Street (MD Route 450) in the City of Annapolis, in Anne Arundel County, Maryland (Figure 1). No building structures currently exist onsite. The study area is currently comprised of mixed hardwood forest. The latitude and longitude of the study area are N38°58'59" and W76°31'54", respectively.

## 3. ENVIRONMENTAL MAPS

Various environmental maps were reviewed prior to conducting the wetland delineation in order to obtain knowledge on potential site conditions and characteristics. This information is useful in accurately delineating the limits of jurisdictional areas in the field.

### a. NRCS Soil Surveys

The U.S. Department of Agriculture - Natural Resources Conservation Service (NRCS) has produced soil surveys for every county within the State of Maryland. The soil surveys map the locations of the various soil types throughout each county and provide a description of each soil type. The updated soil survey for Anne Arundel County, MD (Figure 2) that can be accessed online at <http://websoilsurvey.nrcs.usda.gov> revealed that four (4) soil types are mapped on or within

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<sup>1</sup> Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*. Wetlands Research Program Technical Report Y-87-1. Final Report. January.

<sup>2</sup> U.S. Army Corps of Engineers. 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region*. ed. J.S. Wakeley, R.W. Lichvar, C.V. Noble, and J.F. Berkowitz. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

close proximity to the subject property (as summarized in Table 1). None of the soil units have been classified as hydric by NRCS.

b. *National Wetland Inventory Maps*

The National Wetland Inventory (NWI) Maps prepared by the U.S. Department of the Interior - Fish & Wildlife Service used high altitude aerial photography to map the limits of various wetland types<sup>3</sup> throughout the United States. The NWI Map for this site (Figure 3) does not indicate the presence of a mapped wetland classification on the subject property.

c. *USGS Topographic Maps*

The U.S. Geological Survey (USGS) Maps depict existing environmental features on sites, including 20-foot topographic lines, forest, structures, and roads, as well as the locations of ponds, intermittent and perennial streams. The USGS Map for this study area (Figure 4) does not indicate the presence of a mapped intermittent or perennial stream within the study area.

d. *Watershed Classification*

Section 26.08.01.08 of the Code of Maryland Regulations lists the stream segment designation for all the waterways within the state of Maryland, as well as their Use Classifications. The study area drains into an unnamed tributary (a Use I Waterway) of Weems Creek, a tributary of the Severn River CoMar 26.08.02.08(K). The site is not located within a Tier II watershed according to CoMar 26.08.02.04-1.

#### 4. WETLAND DELINEATION PARAMETERS

In order for an area to be classified as a wetland, the following three parameters must exist: (a) a predominance of hydrophytic vegetation; (b) evidence of wetland hydrology; and (c) hydric soils. The data sheets in Appendix A summarize the results of the field investigation.

a. *Hydrophytic Vegetation*

By definition, wetlands support a prevalence of vegetation typically adapted for life in saturated soil conditions under normal circumstances. Hydrophytic vegetation is present when the plant community is dominated by species that can tolerate prolonged inundation or soil saturation during the growing season. The wetland indicator status<sup>4</sup> of the species that make up the plant community is used to determine whether hydrophytic vegetation is dominant. Plant

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<sup>3</sup> Cowardin, Lewis M., V. Carter, F.C. Golet, and E. T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. U.S. Fish & Wildlife Service - Biological Services Program. FWS/OBS-79/31.

4

Reed, P.B., Jr. 1988. *National List of Plant Species that Occur in Wetlands: 1988 National Summary*. Biological Report 88(24), U.S. Fish and Wildlife Service, Washington D.C.



species that are classified as Obligate (OBL), Facultative-wetland (FACW), or Facultative (FAC) are considered to be hydrophytic, while species classified as Facultative-Upland (FACU) and Upland (UPL) are considered to be non-wetland plants.

b. *Wetland Hydrology*

Wetlands by definition are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. The presence of water for an extended period of time at or within 12 inches of the soil surface is the driving force for all wetlands. The *Corps of Engineers Wetlands Delineation Manual* and the *Regional Supplement* list the indicators of wetland hydrology. The indicators are divided into two categories - primary and secondary. One primary indicator is sufficient to conclude that wetland hydrology is present. In the absence of a primary indicator, two or more secondary indicators are required to conclude that wetland hydrology is present.

c. *Hydric Soils*

A hydric soil is defined as a soil that formed under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions, generally within 12 inches of the soil surface. Within the Coastal Plain of Maryland, hydric soil indicators are listed in the *Regional Supplement*. Either a 2½-inch diameter bucket auger or a sharpshooter shovel was used to collect soil samples.

## 5. SUMMARY OF FINDINGS

The delineation revealed that jurisdictional waters of the U.S. do exist within the study area, as shown on the enclosed 40-scale *Wetland Delineation Plan* prepared by Sigma Engineering. An intermittent stream was identified outfalling onto the property from a culvert under West Street (MD Route 450). This stream drains in a northerly direction through the site. A restoration occurred in this stream as evidenced by the existence of constructed step pools and rip-rap. Photographs 3 and 4 document the intermittent stream as it drains through the site. No non-tidal wetlands were identified on the property. Wetland Delineation Data Sheet A and Photographs 1 and 2 document an upland swale in the northwest corner of the property.

**This determination cannot be considered complete until written confirmation is obtained from the U.S. Army Corps of Engineers and/or the Maryland Department of the Environment.**

<b>TABLE 1: MAPPED SOIL TYPES</b>				
<b>Map Unit</b>	<b>Soil Description</b>	<b>K-factor (whole soil)</b>	<b>Hydric Rating</b>	<b>Drainage Class</b>
AuB	Annapolis-Urban land complex, 0-5% slopes	0.24	Non-hydric	Well
AuD	Annapolis-Urban land complex, 5-15% slopes	0.24	Non-hydric	Well
DuB	Donlonton-Urban land complex, 0-5% slopes	0.24	1-32% Hydric	Moderately Well
Uz	Urban land	--	--	--

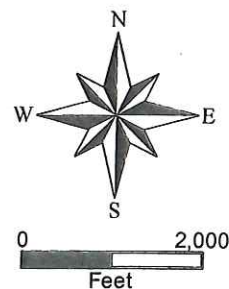
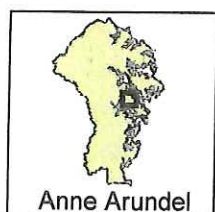
Source: <http://websoilsurvey.nrcs.usda.gov> (March, 2015)





Data Source: ESRI




**Vicinity Map**  
**2010 West Street**  
**Original Scale: 1" = 2000'**

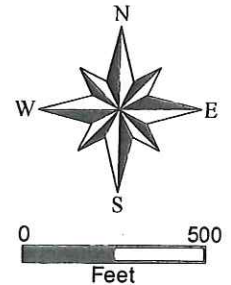




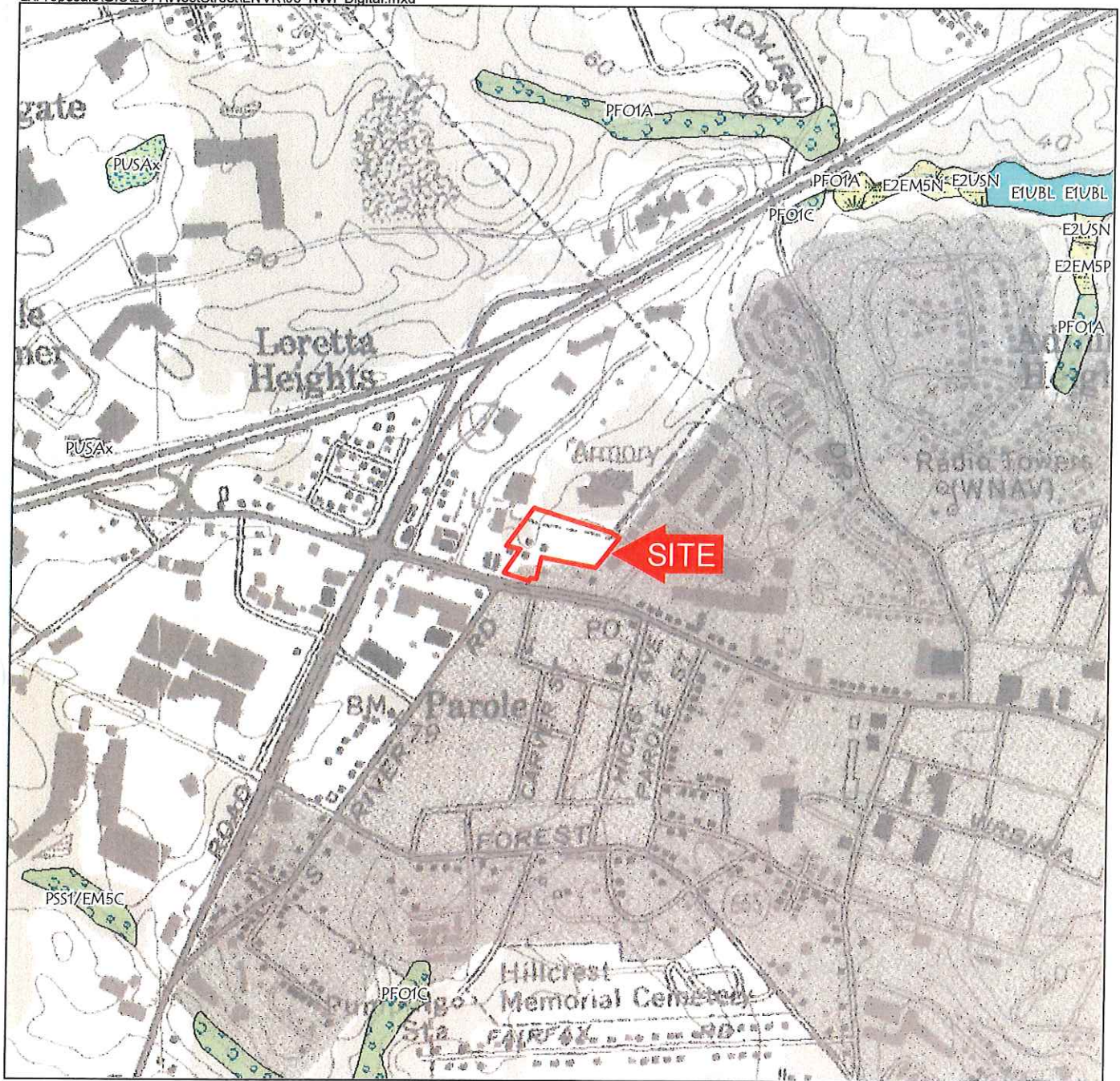


**Soils Map**  
**SSURGO Digital Data**  
**2010 West Street**  
**Original Scale: 1" = 500'**

-  Hydric Soils
-  Soils with Hydric Inclusions
-  Non-hydric Soils












# Digital National Wetlands Inventory Map

2010 West Street

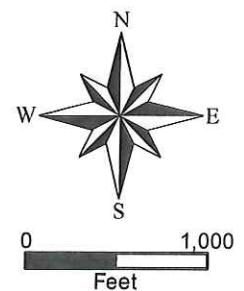
Original Scale: 1" = 1000'

## Wetland Type

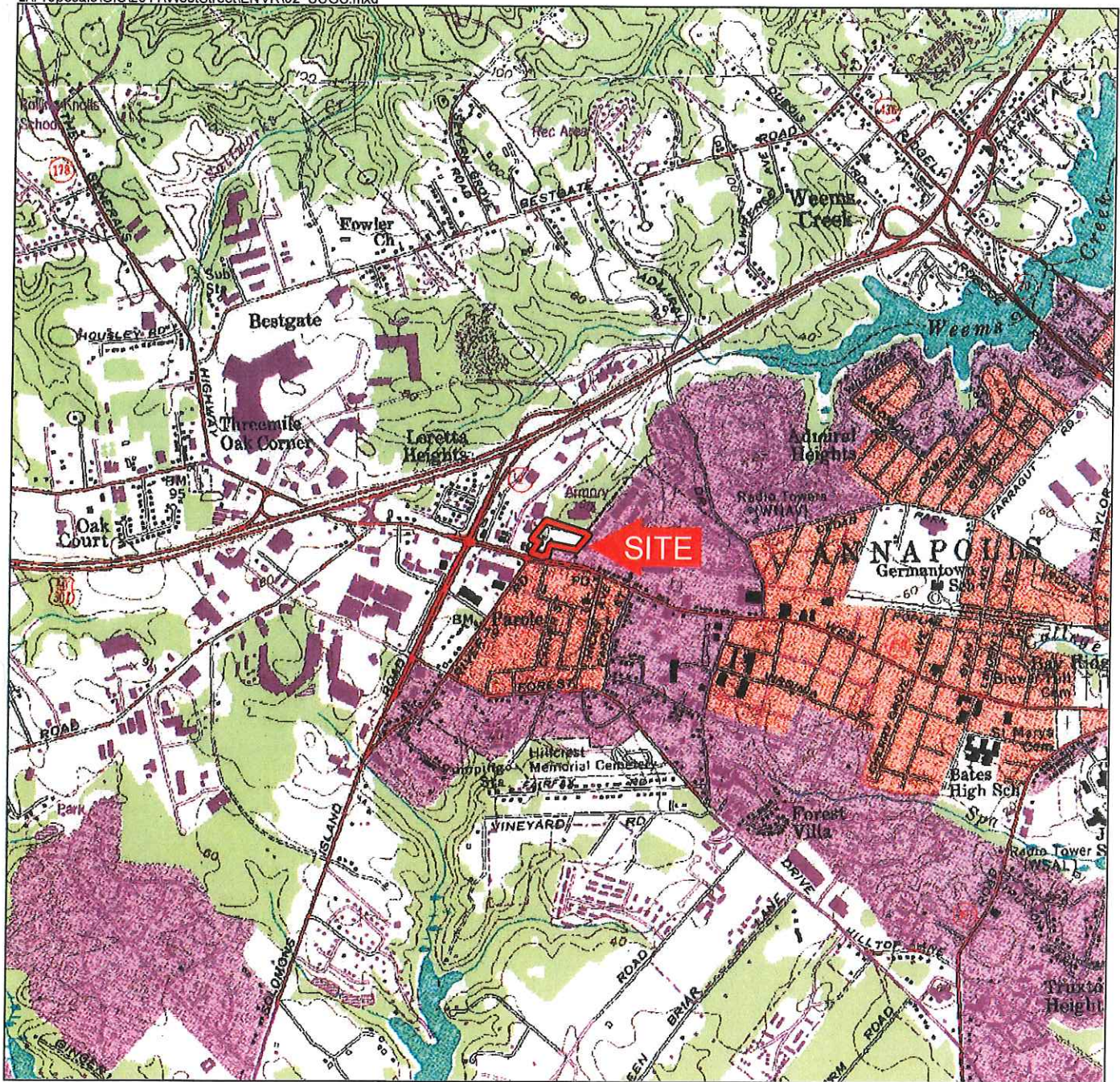
-  Open Water
-  Estuarine and Marine Wetland
-  Freshwater Emergent Wetland
-  Freshwater Forested/Shrub Wetland
-  Other Wetland

Download Date: September 2014

Source: <http://www.fws.gov/wetlands/Data/State-Downloads.html>

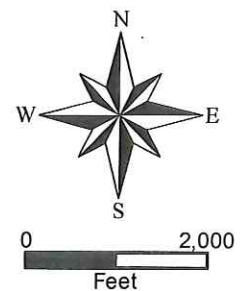






**USGS Quad Map  
South River, MD 1993  
2010 West Street  
Original Scale: 1" = 2000'**

Latitude: 38°58'59" N  
Longitude: 76°31'54" W  
Hydrologic Unit Code (HUC): 020600040203  
Name of Watershed: Weems Creek  
COE Region: Atlantic and Gulf Coastal Plain





# **APPENDIX A**



# WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: 2010 West Street City/County: Annapolis / AA County Sampling Date: 3-11-15  
 Applicant/Owner: \_\_\_\_\_ State: MD Sampling Point: A  
 Investigator(s): K. Wells + A. Murtha Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): Concave Slope (%): 3-5  
 Subregion (LRR or MLRA): 149 A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Annapolis - Urban land complex (Aub) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present? Yes _____ No _____	
Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	
Remarks:	

## HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
<b>Primary Indicators (minimum of one is required; check all that apply)</b> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)

<b>Field Observations:</b> Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**VEGETATION (Four Strata) – Use scientific names of plants.**

 Sampling Point: A

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Morus alba</u>	<u>20</u>	<u>Y</u>	<u>FacU</u>
2. <u>Acer negundo</u>	<u>20</u>	<u>Y</u>	<u>Fac</u>
3. <u>Juglans nigra</u>	<u>10</u>	<u>N</u>	<u>FacU</u>
4. <u>Robinia pseudacacia</u>	<u>5</u>	<u>N</u>	<u>FacU</u>
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____

\_\_\_\_\_ = Total Cover  
 50% of total cover: 27.5 20% of total cover: 11

Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Nistaria sp</u>	<u>30</u>	<u>Y</u>	<u>Fac</u>
2. <u>Rosa multiflora</u>	<u>10</u>	<u>N</u>	<u>FacU</u>
3. <u>Lindera benzoin</u>	<u>10</u>	<u>N</u>	<u>Fac</u>
4. <u>Prunus serotina</u>	<u>5</u>	<u>N</u>	<u>FacU</u>
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____

\_\_\_\_\_ = Total Cover  
 50% of total cover: 27.5 20% of total cover: 11

Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Stellaria media</u>	<u>20</u>	<u>Y</u>	<u>FacU</u>
2. <u>Lonicera japonica</u>	<u>15</u>	<u>Y</u>	<u>FacU</u>
3. <u>Duchesnea indica</u>	<u>10</u>	<u>N</u>	<u>FacU</u>
4. <u>Clethra hederacea</u>	<u>10</u>	<u>N</u>	<u>FacU</u>
5. <u>Smilax rotundifolia</u>	<u>5</u>	<u>N</u>	<u>Fac</u>
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____

\_\_\_\_\_ = Total Cover  
 50% of total cover: 30 20% of total cover: 12

Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>N/A</u>	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____

\_\_\_\_\_ = Total Cover  
 50% of total cover: \_\_\_\_\_ 20% of total cover: \_\_\_\_\_

Remarks: (If observed, list morphological adaptations below).

**Dominance Test worksheet:**

 Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

 Total Number of Dominant Species Across All Strata: 5 (B)

 Percent of Dominant Species That Are OBL, FACW, or FAC: 40 (A/B)

**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____	(A) _____ (B) _____

Prevalence Index = B/A = \_\_\_\_\_

**Hydrophytic Vegetation Indicators:**

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0<sup>1</sup>
- ☐ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Definitions of Four Vegetation Strata:**
**Tree** – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

**Sapling/Shrub** – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

**Herb** – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

**Woody vine** – All woody vines greater than 3.28 ft in height.

**Hydrophytic  
Vegetation  
Present?**

 Yes \_\_\_\_\_ No ☒



## SOIL

Sampling Point: A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	10YR 3/3						loam	
4-9	10YR 4/4						loam	
9-14	7.5YR 4/4						sandy loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

<input type="checkbox"/> Histic Sol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR S, T, U)	<input type="checkbox"/> 1 cm Muck (A9) (LRR O)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR S, T, U)	<input type="checkbox"/> 2 cm Muck (A10) (LRR S)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR O)	<input type="checkbox"/> Reduced Vertic (F18) (outside MLRA 150A,B)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (LRR P, S, T)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Anomalous Bright Loamy Soils (F20)
<input type="checkbox"/> Organic Bodies (A6) (LRR P, T, U)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> (MLRA 153B)
<input type="checkbox"/> 5 cm Mucky Mineral (A7) (LRR P, T, U)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Muck Presence (A8) (LRR U)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> 1 cm Muck (A9) (LRR P, T)	<input type="checkbox"/> Marl (F10) (LRR U)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Ochric (F11) (MLRA 151)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR O, P, T)	
<input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 150A)	<input type="checkbox"/> Umbric Surface (F13) (LRR P, T, U)	
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S)	<input type="checkbox"/> Delta Ochric (F17) (MLRA 151)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Reduced Vertic (F18) (MLRA 150A, 150B)	
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149A)	
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)	
<input type="checkbox"/> Dark Surface (S7) (LRR P, S, T, U)		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If observed):

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No ☒

Remarks:

## **APPENDIX B**



**2010 West Street**

Photograph 1 – 03/11/15  
(View of soil profile at Wetland Delineation Point A)



Photograph 2 – 03/11/15  
(View of vegetation at Wetland Delineation Point A)





**2010 West Street**

Photograph 3 – 03/11/15

(Intermittent stream channel just below the outfall from West Street.)



Photograph 4 – 03/11/15

(Intermittent stream channel midway through the site.)





**2010 West Street**

Photograph 5 – 03/11/15

(Intermittent stream channel flowing offsite at the northern property boundary.)

